PRESENT ASPECTS OF MARKETING FISH FROM LAKE VICTORIA, UGANDA'

By

C.T. Kirema-Mukasa[2] and C.M. Dhatemwa[3]

ABSTRACT

Over the recent years there has been steady growth in the fish catches of Lake Victoria due to increased investment into the production sector. In terms of fish distribution, marketing, and utilisation there have been on7y a slight change mainly towards the export market, with no parallel development for the domestic market.

This paper which brieFly describes the present marketing system discusses the prob7ems of marketing Lake Victoria fish, highlights the impact of industrialisation on the the domestic market, and focus particu7arly on the prob7ems besetting the islands which are the major sources of Lake Victoria fish.

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2. Fisheries Economist (Marketing), Ministry of Agriculture, Animal Industry and Fisheries, Fisheries Department, Uganda.

3. Assistant Commissioner for Fisheries, Ministry of Agriculture, Animal Industry and Fisheries, Fisheries Department, Uganda.

1. INTRODUCTION

Uganda, is a land-locked country lying astride the equator with a compact size of 241,000 km² of which about 82% is land and about 18% is covered by water (lakes and rivers 33,980 km², swamps 10,120 km²). Of the land which covers 196,960 km², 34% is forest and woodland, 26% pasture, 28% cultivated (20% seasonal and 8% perennial), and 12% mountainous and non-arable zones(FAO/ADB 1984). The country has a-semi-equatoria1 climate with rainfall ranges of 900 to 1500 mm per annum, highest being in Ssese Islands. The major water bodies are found in the high rainfall regions of central, south and western Uganda.

Uganda's population in 1991 is estimated at 16.5 million with 2.5% average rate of growth(MPED,1991). Uganda is also among the six least urbanised countries in the world with only 11% of the people in urban centres. Agricultural production which is characterised by small-scale farming is the backbone of the country's economy and contributes 70% of GOP. An estimated 54% of the households depend solely on agriculture, 19% on mixed farming, 3% on livestock keeping, and 2% on fisheries for their livelihood (MAIF,1987).

For its foreign earnings Uganda depends almost entirely on a few cash crops such as coffee, which accounts for 77% of the total exports. The fishing industry has made modest growth over the last few years, and in 1990 a growth of 12.8% was recorded (MPED,1990). The fall in prices of primary products on the world market and the need for a self sustained economy has shifted attention to other sectors (manufacturing, fisheries and livestock) for export diversification. Since 1990 non-coffee exports have recorded high foreign exchange earnings. In 1986 export earnings from this sector was a mere US$ 15 million dollars but in 1990 about US$ 50 US million was recorded for the same value (MPED, 1990).

1.2 The Fisheries Industry[4]

Fisheries, a rural based industry supports about 20,750 households directly, and an additional 28,500 households depend on post-harvest activities (MAIF,1987). The industry is artisanal whose major capital inputs are dug-out and planked canoes and estimated production per a fisherman is 6.4 tonnes per annum. Though a few women are involved in fishing as gear and boat owners, their major role is in post-harvest sector as processors and traders.

4. The review on this section is based mostly on the departmental reports of the (UFO) Uganda Fisheries Department, and on earlier papers, including Orach-Meza, et *al, 1989.*

Uganda's fish production is dependent on some 165 lakes rich in fish fauna which has been grouped into 17 families having 68 genera with 245 species(Greenwood 1965). Currently, fish production is estimated at 245,000 tonnes worth about U.shs 34.3 billion, and estimated potential is 300,000 *tonnes(Tab7e 1).).*

The major contributors to the national catch are Lakes Victoria, Kyoga, Albert, Edward and George. From 1970 up to mid-1980s Lake Kyoga was the most productive lake accounting for 60% of the total production. Now this has changed in favour of Lake Victoria whose contribution is about 60% and that of Lake Kyoga a mere 30%. (*Tab7e 1).*

Presently, species of major commercial importance are Lates(Nile perch) and *Oreochromis* (Nile Tilapia) contributing 55.3% and 32.2% to the total national catch. In addition, other species exploited for both commercial and subsistence production include *Bagrus and C7arias(cat* or mudfishes), *A7estes* (herring-like), *Protopterus* (lungfish), *Hydrocynus* (Tiger fish), *Rastrineobo7a* and *Hap7ochromis* (the small pelagic *'sardines')(Tab7e 2).*

During the peak production period of the 1970s, 70% of the total catch was fish marketed fresh, but by 1988 it had fallen to less than 50%. Up to 1970 there were moderate fish marketing and distribution facilities provided under the fish marketing and distribution plan of 1950s, whose major aim was to increase the efficiency of marketing operations. The present situation calls for revival of a revised plan of action to meet the urgent requirements of fish marketing and distribution facilities necessary for handling fish for both the domestic and international markets.

2. LAKE VICTORIA: ITS CONTRIBUTION ON FOOD FOR THE NATION

Lake Victoria has always been an important source of fish for the people living within its vicinity. Its exploitation is dependent on small-scale fishermen who live in either nucleated settlements or in villages near the landings. The Fishing Community Survey on Lake Victoria - Uganda, 1991 estimated a population of about 130,000 people belonging to 30,000 household with a mean size of about 4 people. It also indicated a predominantly male population with only 6% of the communities showing a female population of more than 42% (Kitakule 1991).

Commercial exploitation in the Uganda started in 1910 with the introduction of flax gill nets on Lake Victoria. Before, fishermen were using hooks, baskets and beach seine nets of papyrus for subsistence production. Basing on the results of the

earliest survey done on Lake Victoria, a fisheries section was created within the Game Department in 1931 to promote the development of the fishing industry in Uganda (Kanyike, 1991).

In the late 1950s and early 1960s Lake Kyoga and Lake Victoria fisheries were stocked with *Lstes ni70ticus* and *Oreochromis ni70ticus* to boost and replenish the declining stocks in these lakes. Both these species were to play an important role in the transformation of these fisheries.

Up to early 1980 Lake Kyoga was the major contributor to the national catch. The reverse in production from the mid-1980 when Lake Victoria's contribution outstripped that of Lake Kyoga *(Tab7es* 1 & 2), was attributed to several factors. The major ones being the the use of illegal gear and destructive fishing practices resulting form shortages of fishing inputs, the decline of the water level which reduced breeding and nursery areas, and the breakdown of the infrastructure due to insecurity problems in Lake Kyoga area (Orach-Meza et *a7. 1989).*

Lake Victoria's upward trend in production is due to the increase in *Lates* catches which has rose from a level of less than 1,000 tonnes in 1981 to a level of 101257.4 tonnes in 1989. with a distinct improvement in tilapia catches (mostly *Oreochromis)*, combined Nile perch and tilapia catches for 1989 accounted for 92% of the total lake production.

This dramatic growth in Lake Kyoga and later on, in Lake Victoria catches, during the period (1971 - 1986) characterised by political upheavals, alleviated the otherwise food shortage. The breakdown in infrastructure affected food distribution throughout the country, cutting off highly productive areas from traditional major markets. The lack of inputs for both the agricultural and industrial sectors resulted into commodity shortages and price shoot ups for all food products and household items. The abundance of fish from Lake Victoria during those difficult years had one positive advantage though, it broke down consumer resistance making Nile perch one of the most widely accepted species in the country.

Despite, some improvement in overall conditions, the transposition in fish marketing and distribution system has prevailed. Until recently, large quantities of processed Nile perch were being taken westward from Lake Victoria. The situation has only started to change with the loss of the Zairois market due to political climate and devaluation of its currency. A few traders from the western lakes are now bringing processed fish to Kampala and an occasional vehicle brings fresh fish mainly *Bagrus docmac* to Katwe market, Kampala. Continuity of this trend will depend on the stability in the neighbouring country and the lucrative nature of the domestic market.

The demand for fish depends on varied factors such as consumer attitudes and preferences, cultural influences, and availability of supplies. Fresh fish is generally, preferred to cured products even though it cannot be obtained on a regular basis because of the bottlenecks in the distribution system (Nyholm and Whiting 1975; TORI 1983). Therefore, fresh fish is frequently consumed by residents of districts bordering the lakes and these people are more discriminative against the quality of fish than those in distant areas. People far from any major water body consume locally processed products and in some cases this has resulted into a strong preference for such products (Kirema-Mukasa & Reynolds 1991,). Chilled or frozen fish has not yet been widely acceptance in the domestic market mainly due to limited promotion among the local fish consumers.

Uganda's major fish exports composed mainly of processed products go to the neighbouring countries of Kenya, Zaire and Sudan. Between 1960 to mid-1970s Kenya's main supplier of smoked fish were the western lakes of Edward and George followed by Victoria. Lake Kyoga species had very low demand among the Kenyan traders. With the reverse in fish distribution, Lake Kyoga gained supremacy as an important source of smoked tilapia for Kenya. The trade in fresh fish on Victoria waters also escalated as the fishermen tried to exchange it for essential commodities from the Kenyan industries, which were in scarcity throughout the country. The fresh fish trade on the waters has persisted even with the improvement in economy for the mere fact that high demand exists among the Kenyan entrepreneurs who are willing to offer more to the fishermen than their Ugandan counterparts (Kirema-Mukasa & Reynolds,1990). Though some trade has been legalised and several lorries daily transport iced fresh fish destined for processing in Kisumu and Nairobi, the trade is mostly illegal. By 1990 the level of illegal fish exports to neighbouring countries was estimated at 53,720 tonnes. Fish exports to Kenya are composed of tilapia and Nile perch species of which the former is the most demanded. In 1990, fish exports to Kenya were estimated at 54,590 tonnes with a value of US $ 28 millions. Much of this trade is illegal comprising of about 92% (fresh fish) of all the fish exports to Kenya. Only 8% (i.e. 7% smoked and sundried, and 1% fresh) pass through the customs posts *(Table* 3).

In addition, the growth in industrial processing has enabled Uganda to expanded its export trade to serve distant markets. In 1990, the recorded amount of frozen tilapia and Nile perch fish products exported to EEC countries, and Greece was about 2000 tonnes. Sundried Nile perch air bladders were also taken to South-East Asia. The major obstacle to the export trade is the smuggling of fish on Lake Victoria waters by the Ugandan fishermen to Kenya.

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3. PROCESSING, DISTRIBUTION AND CONSUMPTION

The distribution of fresh fish is mostly restricted to a narrow belt around the lake, since the high humid climate, the poor road links and the lack of modern preservation facilities make it difficult to supply distant markets. Still, a substantial proportion of Lake Victoria catches, estimated at 46% is consumed fresh, mainly in the major urban centres of Kampala, Entebbe, Jinja, Busia, and Masaka lying within this belt. (Kirema-Mukasa & Reynolds 1991)

3.1 Fish Processing

In Uganda, the commonly used methods of processing are smoking, sundrying, salting and frying. Hot-smoking, a method reputed to give the most returns to the traditional processor, is the most popular on Lake Victoria. Being dependent on forests, its continuity is being threatened by the environmental awareness campaigns unless modern methods of smoking which practically use little or no fuelwood are introduced. Over the last years the breakdown in infrastructure has led to increased fish processing leading to shortages of fuelwood in some landing places. Of late the islands of Lake Victoria which are rich in forest are being stripped bare by the logging companies causing great concern about the future of these islands. This has resulted in government stepping up measures to control the cutting of trees, either for lumber or for fuelwood.

Frying a popular method of preservation, mostly for tilapia, in the western lakes, is becoming a popular method around Lake Victoria, mainly for Nile perch. The fried perch, is usually eaten as a snack in local drinking places, where it replaces roasted chicken and meat as an affordable indulgence (Kirema-Mukasa & Reynolds 1990).

Salting is a new method of fish processing in the Islands and it is mainly applied on small sized Nile perch whose market is in Northern Uganda and Zaire (UFO 1988). Sundrying is only applied on the small pelagic species of *Hap7ochromis* and *Rastrineobo7a*. Iced, filleted, and cold-smoked fish products are mainly for export and a limited domestic market.

3.2 Fish Distribution

The major urban centres within the lake belt form a significant domestic market for fresh fish. These include Kampala, Masaka, Jinja, Iganga, Tororo, Busia, Kyotera, and trading centres along the supply routes. Rural areas within a radius of 50 km from the landings also receive substantial amount of fresh fish supplied by fish hawkers on bicycle. Smoked fish reaches far outlying areas and is prominent in the export trade to neighbouring countries.

Until late 1970s Kampala wholesale markets acted as the nuclei of the fish collection and distribution system in the country. Major distribution routes were estimated to handle about 5,500 tonnes annually via Masaka to Kampala; Jinja to Kampala handled 3,000 tonnes p.a.(TDRI,1983). Today, there has been decentralisation of fish trade and Kampala no longer enjoys the central position it did before the 1980s, due to the disruptions that have altered the nearly formal arrangements transforming the patterns of fish distribution throughout the country.

Presently, the largest amount fish to distant markets goes directly from the landings by-passing Kampala wholesale markets. Most of the smoked fish landed in Bukakata Landing, Masaka is taken to Zaire, that of Jinja is mostly destined for Tororo, Busia and Kenya and much of the fresh fish to Kenya is smuggled across the water. The amount received in Kampala from Lakes Kyoga and Victoria and the occasional few supplies from Lake Albert are destined for markets within the urban district and its surbubs. About two-thirds of the fresh fish to Kampala is from Lake Victoria and a large part of of the remainder is from Lake Kyoga.

About 9,000 people operate as fish traders within the districts bordering the lake of whom about 23% are female and 77% male. Fish processing though rarely done in the markets, being mainly a landing activity, had more female participation of about 32% of the fish processors. Fish mongering as a full time occupation is rarely practised and only in big urban centres, otherwise fish traders engage in other activities (farming, shopkeeping, transport, market vendors, fishing, etc) to augment their meagre incomes from fish. Only 3% of the fishermen actively participate in fish trading, their increased involvement being hindered by the actual nature of fishing. There is no time far small-scale fishermen to engage in activities needing direct personal involvement (Kirema-Mukasa & Reynolds 1991)

Pick-ups, lorries, bicycles as well as taxis are the major carriers of fish. About 30% of the fresh fish is ferried by pick-ups, 6% by bicycles and 2% by passenger vans to markets in the lake districts. For cured fish about 25% is carried by pick-ups, 6% by bicycle and 4% by passenger vans to the markets in the lake districts. *(Table* 4 & 5) *The* inter-regional trade in smoked products is dominated by the lorry and the pick-ups. Due to poor transportation, fish is unevenly distributed resulting into higher prices in distant markets as the cost of transportation is highly reflected in the final price.

Ice is not used as a fish preservation method for internal trade, and generally fresh fish reaches the final consumer in a deteriorated state due to lack of preservation and extensive handling through the channels of distribution. The channel of

distribution depends on a number of factors which include the type of product, distance between the source and the market, the nature of the market to be served, and the consumer demand of a particular area (Kirema & Reynolds 1991). Fish for household consumption is purchased from market vendors and hawkers on bicycle, whereas retailers get their supplies either from the landings or the urban wholesale markets. Smoked fish which reaches distant markets is handled more extensively by traders and passes through longer channels than those of fresh fish (Fig 2 & 3).

3.3 Fish Consumption.

High consumption levels mainly in fresh fish are in the urban centres and trading centres along the major feeder roads, whereas low consumption is in rural areas with smoked fish being prevalent in distant markets. The high consumption in the urban centres is partly due to the ready availability of fish and the purchase pattern of the urban dwellers whose home requirements are acquired through market visits. In rural areas fish is consumed occasionally and only when brought within easy reach during the bi-weekly markets(Kirema & Reynolds 1991). It is normally bought as a change from beans which is the main source of protein in Uganda (Kent & Josupeit 1989).

Average per capita fish consumption is 13 kg but may vary from 1 kg to 200 kg. The recent Fish Markets Study, showed Ssese Islands as having the highest per capita fish consumption of all the lake districts, mainly due to the availability of the product and the scarcity of other foods in the area. This was also indicated in the household survey of the fishing communities of Lake Victoria where due to scarcity of other foods sometimes fish is the only meal served (Kitakule,1991). Kampala with a population of about 0.7 million people has a per capita consumption fish consumption of about 20 kg. This is less than what had been predicted in earlier years due to improvement in security and road conditions allowing fish to penetrate deep into the interior. Along the lake, areas of high fish consumption are Mukono and Jinja districts{Tab7e 6).

Fish contributes 50% of the total animal protein in the country, competing well with meat whose consumption is becoming rarer in most homes. Prices undoubtedly plays a major role in consumer acceptance and fish (Nile perch) is the cheapest source of animal protein in the country. According to the protein cost indices for major food items in Kampala meat (beef) protein is twice as expensive as fish (Nile perch) and chicken is out of reach of an average town dweller as it is 14 times more expensive than fish and 7 times dearer than meat.

Due to changes in consumption patterns Nile perch has taken over the position that have been enjoyed by Tilapia for many decades. The change to Nile perch consumption has been made more feasible by its abundance, affordable and palatable nature(Reynolds and Greboval,1988). Fish consumption along Lake Victoria was influenced by traditional preferences, such as Bagrus species in the west, and Protopterus in the east (Crutchfield,1959; Kanyike,1972). The shortage of tilapia catches coinciding with the tremendous increase of Nile perch, and boosted by the reputation that Lake Victoria species are tastier than those of Lake Kyoga broke down any remnant inhibition people had against the Nile perch. This notion about taste is generally reflected in the market statistics (UFO, 1988).

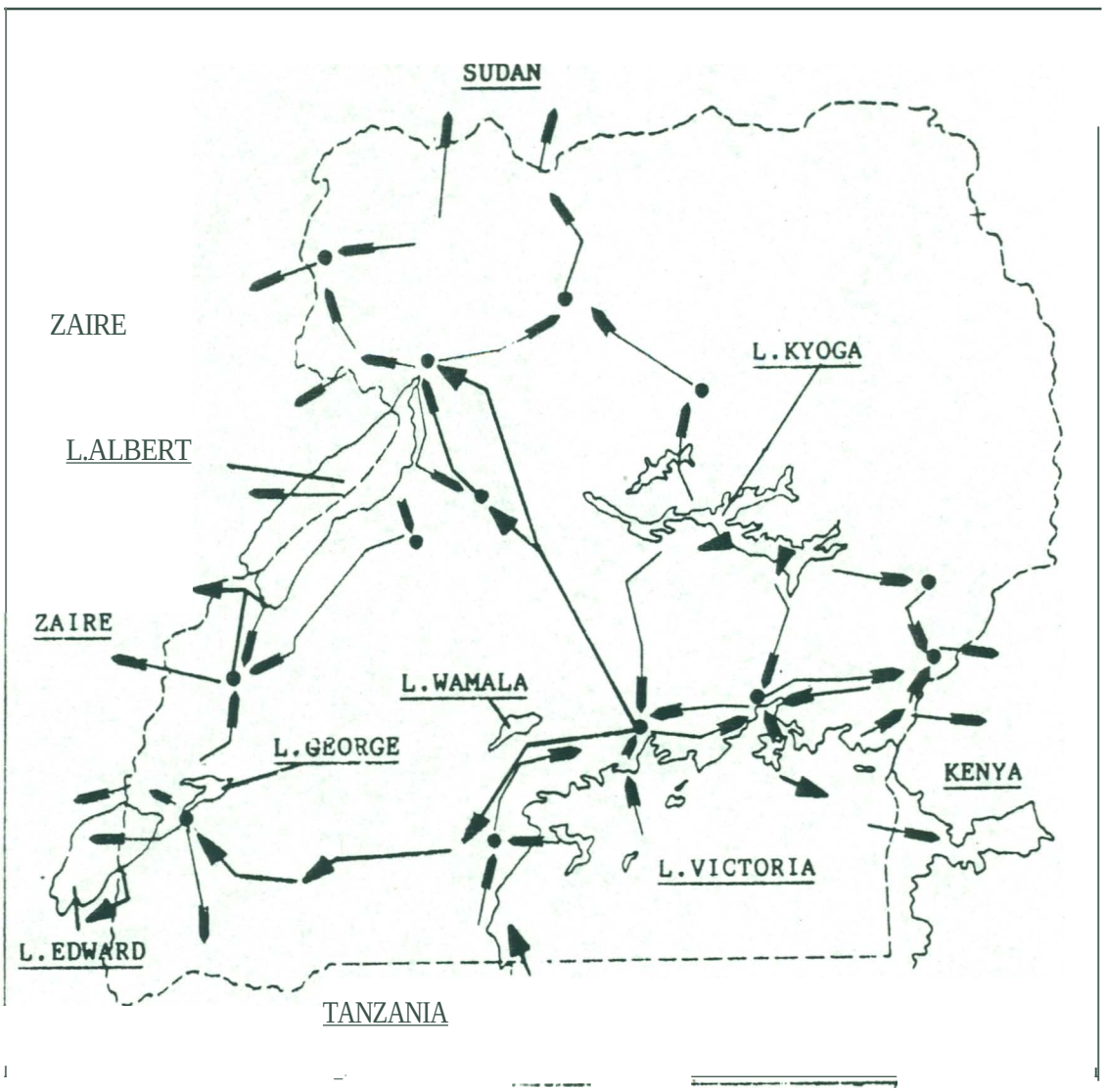
L. Victoria fish has not made much impact in the Western Region of the country where there was traditional resistance to fish consumption. The Fish markets Survey 1990, showed Nile perch as being sold in only one border market with Zaire and Rastrineobola now popular in many rural markets else where was not recorded in any market of that region. Karamoja likewise has not benefited from this important resources because of its dietary habits (Crutchfield,1959).

4. Fish Utilisation.

The ultimate goal in resolving the problems of fresh fish in small-scale fisheries is to find out how to utilise the catch to the best advantage of the beneficiaries (Lisac 1976). Species of most ' economic importance to the country both at the domestic and international level are Nile perch and tilapia, though all the species of L. Victoria can be eaten. These important fishery have been the basis for future developmental plans of fish utilisation. Their identification as raw materials and the technical possibilities for their utilisation have been two of the several factors that influenced these species being considered of more potential use (Connell& Hardy,1982). Modern fish processing plants have been set up by government and private entrepreneurs at Jinja and Kampala to tap this important resource. Nile perch which has certain advantages over Tilapia species can be a basis for formation of the following industries: ' Oil, Skin tanning, Fillets, Value-added products, and glue from scales as well as export industry (Kirema-Mukasa & Reynolds 1990).

Catch statistics indicate tremendous decrease in the amount of haplochromis species from 1981 to 1987, whereas earlier survey in Lake Victoria indicated it forms 80% of the lake yield (Okedi 1972). Despite a limited demand along the lake shores constrained by taboos and customary habits (Jiwani and Dhatemwa 1972), over the years, it has gained some popularity as species containing

FIG. 2: **FISH DISTRIBUTION PATTERNS. POST-1983**



Source: *Adapted from Balarin, 1985.*

APPENDIX II - FIGURES

Fig. 1. SKETCH MAP SHOWING LIHNOLOGICAL ZONES OF LAKE VICTORIA - UGANDA
(WITH ISLANDS IN EACH ZONE SHOWN)

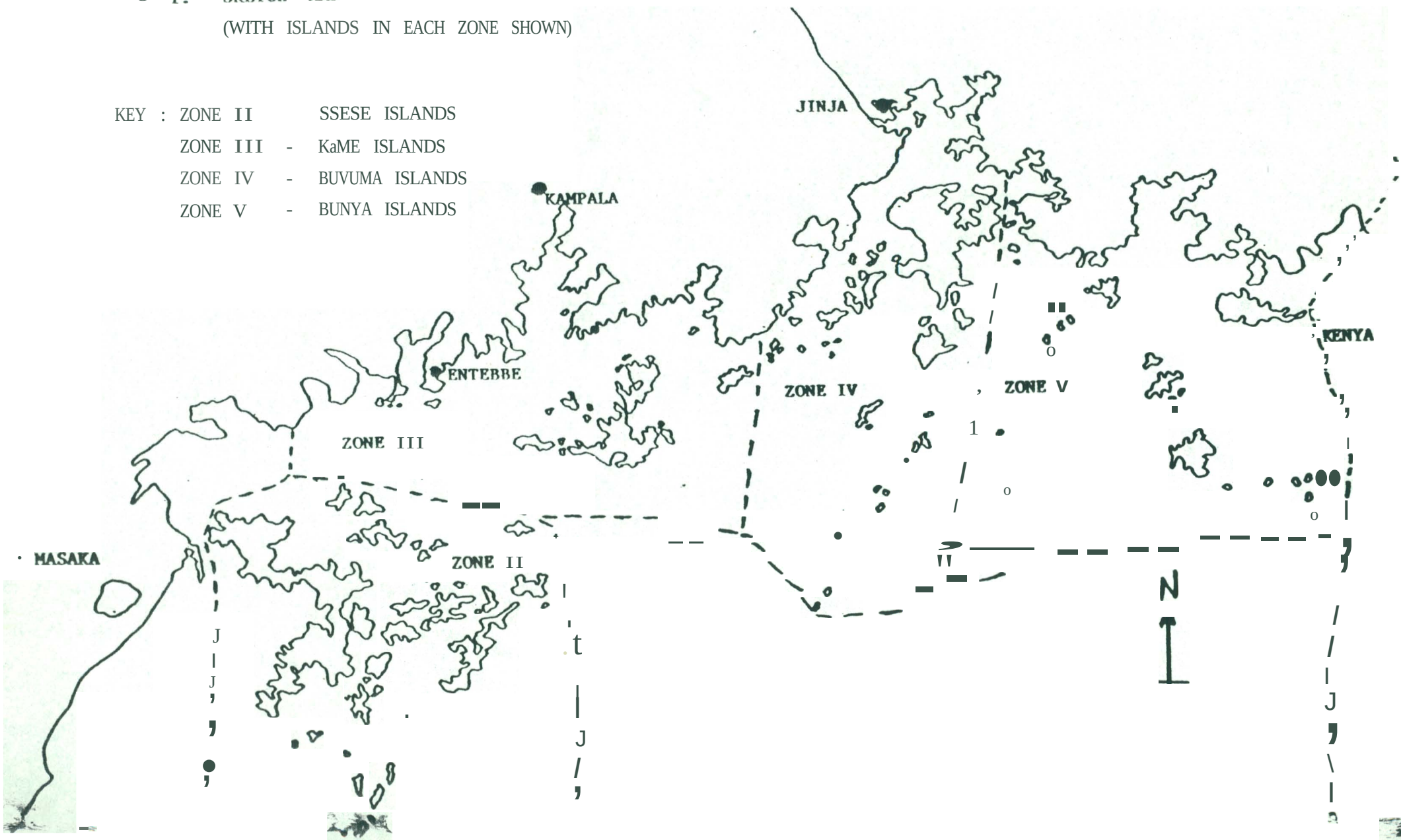


TABLE 6. PER CAPITA FISII CONSUMPTION IN THE SURVEYED DISTRICTS

DISTRICT	COUNTIES SURVEYED	POPULATION IN SURVEY AREA (1990)	EST.FISH CONSUMED VOLUME (KGS)	PER CAPITA FISH CONSUMPTION IN SURVEY AREA
KAMPALA	KIA CITY COUNCIL	773500	14601234.8	19
IUWERO	KATIKAMU	146900	881876.25	6
MPIGI	All EXCEPT GOMBA	841800	16764599.2	20
HUIKONO	All EXCEPT BUVUHA	797900	43337743.5	54
IGANGA	All EXCEPT BUSIIKI & IUUKA	689600	6558168.65	10
JINJA	All	284900	15350617.3	54
KAHULI	BUZAAYA	93100	2518086.45	27
TORORO	All	554000	6580055.65	12
HASAKA	All EXCEPT MAWOGOLA & IWEMIYAGA	688600	10458481.5	15
RAKAI	KYOTERA & KAKUTO	198200	1708794.2	9
KAIANGAIA	All	16400	4044988.5	247
ALL DISTRICTS		5084900	122804646.	24

NOTE : For areas surveyed refer to Table 4.

Source: HPED , Statistics Department, 199 1.
FISHIN Markets SurveY,199 0.

TABLE 7. AVERAGE PRICES OF FRESH FISH IN SURVEY AREA

DISTRICTS	FRESH FISH/KG TILAPIA	LATES	CLARIAS	BAGRUS	PROT.	BARBUS	MORM.
KAMPALA	407	321	460	677	262	0	0
LUWERO	320	350	0	0	0	0	0
MPIGI	469	276	400	569	239	250	350
MUKONO	338	262	349	481	125	277	0
IGANGA	270	261	423	0	158	0	0
JINJA	358	275	373	342	196	250	275
KAMULI	364	310	0	317	0	0	0
TORORO	392	321	387	0	350	0	0
MASAKA	383	312	323	280	279	0	0
RAKAI	377	302	333	333	300	300	0
KALANGALA	92	65	100	200	100	0	0

Source: FISHIN Markets Survey, 1990

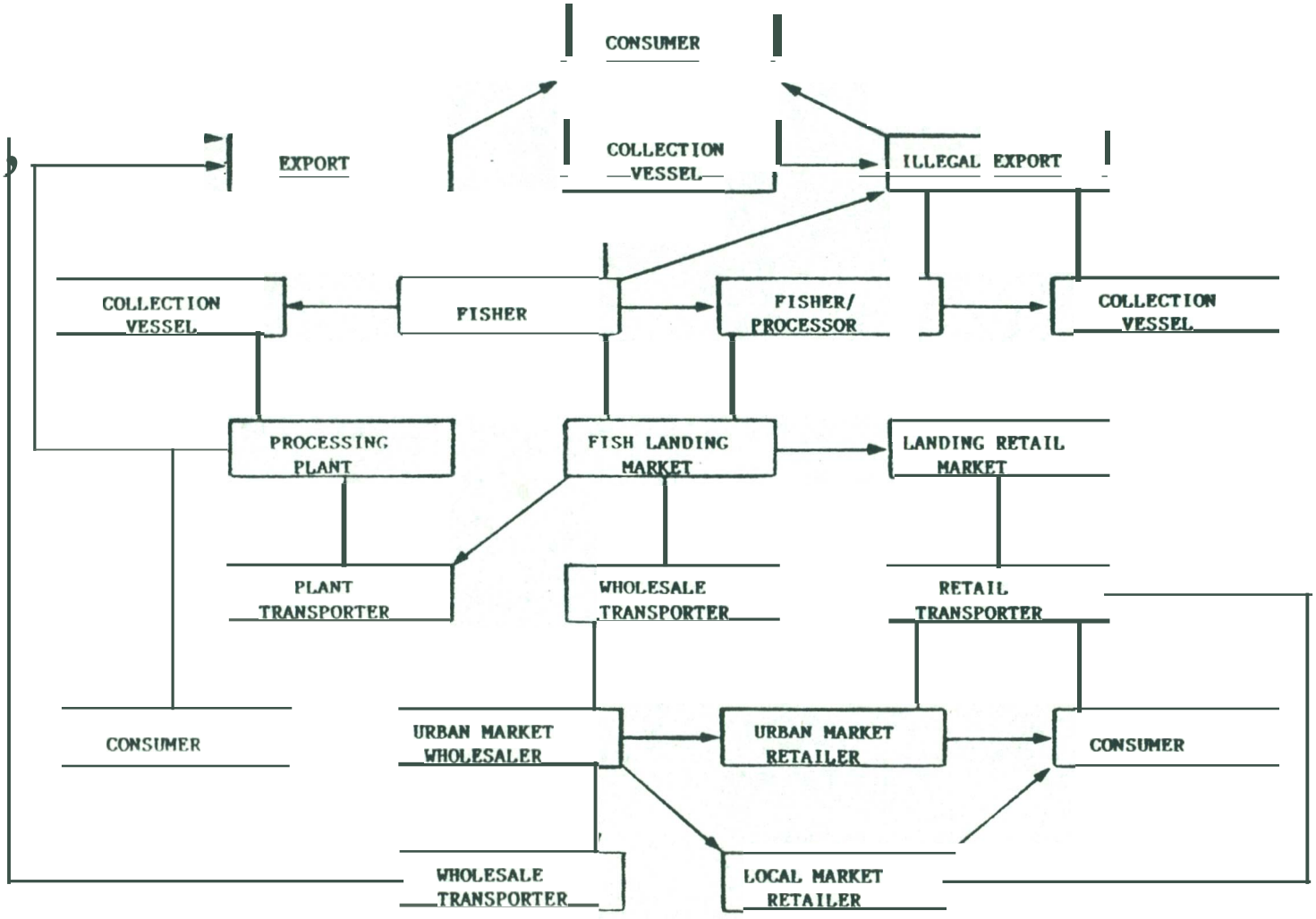
TABLE 5. VOLUME OF PROCESSED FISH DELIVERED TO MARKETS BY ASPECIFIED MODE OF TRANSPORT

	PROCESSED FISH														
DISTRICT	VOLUME	PICK-UPS	%OVER DISTRICT TOTAL	VOLUME (KGS)	TAXIS/ VAHS	% OVER DISTRICT TOTAL	VOLUME (KGS)	BICYCLE	% OVER DISTRICT TOTAL	VOLUME (KGS)	HEAD-LOADS	% OVER DISTRICT TOTAL	VOLUME (KGS)	OTHERS % OVER TOTAL	VOLUME DIST. (KGS)
KAMPALA	4888005.65	24	22.72	1110567.	67	0.00	0	7	0.07	3483	13	0.53	25929	76.68	3748026.2
LUWERO	8458.1	2	32.03	2709	0	0.00	0	3	67.97	5749.1	0	0.00	0	0.00	0
MPIGI	4020537.62	13	7.82	314362.2	19	0.66	26675.05	78	1.53	61386.8	0	0.00	0	89.99	3618113.52
MUKONO	21833733.7	36	38.B5	8481363	19	3.66	799563.5	35	0.82	178235	4	0.09	19866	56.59	12354706.2
IGAHGA	2272526.35	1	0.30	6772.5	4	1. 76	40033	132	23.64	537171.0	1	0.02	412.8	74.28	1688137
JIHJA	5167890.5	3	5.22	269825	14	5.30	273652	17	2.84	146565.5	10	3.05	157380	83.60	4320468
KAMULI	581351. 4	0	0.00	0	12	91.33	530948.2	12	8.52	49527.4	3	0.15	860	0.00	0
TOR ORO	2170179.9	11	13.38	290353.2	0	0.00	0	320	22.61	4905B7	94	2.74	59387.3	61.28	1329852.4
MASAKA	3692526.1	9	3.99	147167.5	46	2.60	96148	423	24.02	886829 .8	13	0.17	6103.85	69.23	2556276.9
RAKAI	178310.25	1	1.98	3530.542	5	11.90	21220.5	94	85.90	153168.5	2	0.21	383.0547	0.00	0
KALAHGALA	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	100.00	0
BUSHEHYIi	159737.25	7	26.49	42312	0	0.00	0	37	72. 09	115154.5	1	0.97	1548	0.45	722.666475
KABAROLE *	57339	0	0.00	0	0	0.00	0	50	100.00	57339	0	0.00	0	0.00	0
KASESE *	623724.2	19	65.53	408726.4	0	0.00	0	55	30.68	191358 .5	10	2.60	16208.85	1.19	7430.29718
RUKUHGIRIi	99915	6	76.33	76265.11	0	0.00	0	27	20.10	20081	13	3.57	3568.880	0.00	0
	45754235.0	132	24.38	11153954	186	3.91	1788240.	1290	6.33	2896636.	164	0.64	291647.7	64.75	29623744.2

Hote: Percentages were based on the initial volume delivered to the markets before any fish was distributed to other markets and consumers.
Others: other mode of transport included boats, lorries, buses, train, and wheelbarrows.
* : Districts in Lakes Edward/George area

Source: FISHIH Markets Survey. 1990

FIG_ 3: FISH PRODUCER-CONSU"ER LINKAGES, UGANDA 1990



Source: Adapted from *8alarin. 1985.*

TABLE 4. VOLU"E OF FRESH FISH DELIVERED TO MARKETS BY ASPECIFIED MODE OF TRANSPORT

DISTRICT	TOTAL VOLUME (KGS)	PICK-UPS	% OVER DISTRICT TOTAL	VOLUME (KGS)	TAXIS/ VANS	% OVER DISTRICT TOTAL	VOLUME (KGS)	BICYCLE	% OVER DISTRICT TOTAL	VOLUME (KGS)	HEAD-LOADS	% OVER DISTRICT TOTAL	VOLUME (KGS)	OTHERS % OVER TOTAL	VOLUME DIST. (KGS)
KAMPALA	69342380.5	114	50.07	34719729	31	4.14	2870959.	50	0.51	354651.1	4	0.02	11078.95	45.26	31385961.0
LUWERO	761278.45	14	81.00	616635.5	0	0.00	0	3	5.44	41387.5	0	0.00	0	13.56	103255.405
MPIGI	21685726.6	27	8.79	1906781.	3	0.1022329.9		288	8.21	1780002.	2	0.02	3289.5	82.88	17973323.8
MUKONO	55978085.8	66	33.60	18809184	14	0.10	57792	124	2.32	1295944.	10	0.12	68688.2	63.86	35746476.2
IGANGA	4963006.25	2	0.04	2128.5	3	0.31	15265	236	42.15	2091780.	7	0.39	19221	57.11	2834611.6
JINJA	5794355.35	4	2.38	138008.5	0	0.00	0	152	23.53	1363379.	31	1.70	98457.1	72.39	4194510.25
KAMULI	774032.25	2	0.00	0	4	0.00	0	22	63.71	493124	3	0.70	5418	35.59	275490.25
TORORO	2504657.55	9	78.76	1972560.	8	1.49	37216.5	171	17.59	440646.8	0	0.00	0	2.17	54233.75
MASAKA	14809053.8	36	7.49	1109120.	28	1.70	251603.7	523	10.47	1550827.	16	0.31	45734.8	80.03	11851767.5
RAKAI	1426393.85	2	0.23	3257.25	1	2.53	36120	253	58.61	836057.6	0	0.00	0	38.63	550959
KALANGALA	8849400	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0	100.00	8849400
8USHENYI*	714208.5	8	25.34	180987	0	0.00	0	37	67.45	481761.2	6	5.18	37023	2.02	14437.25
KABAROLE *	85785	0	0.00	0	0	0.00	0	9	100.00	85785	0	0.00	0	0.00	0
KASESE *	2505072.5	41	44.67	1119118	0	0.00	0	164	38.20	956861.8	9	0.98	24445.5	16.15	404647.2
RUKUHGIRI*	98642	6	57.11	56330	0	0.00	0	31	38.57	38050.52	15	4.32	4257	0.00	4.47200029
	190292078.	331	31.86	60633841	92	1.73	3291286.	2063	6.21	11810259	103	0.17	317613.0	60.03	114239077.

HOTE: Percentages were based on the initial volume delivered to the markets before any fish was distributed to other markets and consumers.
Others: other mode of transport included boats, lorries, buses, train, and wheelbarrows.
* : Districts in Lakes Edward/George area

Source: FISHIN Markets Survey, 1990

TABLE 3. UGANDA FISH EXPORTS 1990

METHOD OF PRESERVATION	TYPE OF FISH	DESTINATION	TOTAL EXPORT		DOCUMENTED		NON-DOCUMENTED	
			WT. TONES	VALUE $	WT. TONES	VALUE $	WT. TONES	VALUE $
1. Fresh	Oreochromis niloticus	Kenya	25037.7	12537700	37.70	37700	25000	12500000
	Lates niloticus	Kenya	25009.9	12509900	9.90	9900	25000	12500000
2. Sundried	L. niloticus/Hydrocynus/ Alestes (via Ntoroko)	Zaire	600.0	1200000	-	-	600	1200000
	L. niloticus/Hydrocynus (via Masindi)	Zaire	640.0	1280000	-	-	640	1280000
	Oreochromis niloticus	Kenya	714.8	1429600	714.80	1429600		
3. Smoked	Oreochromis niloticus	Kenya	799.7	1599400	799.70	1599400		
	Lates niloticus							
4. Whole fish - frozen	Lates niloticus	Greece	15.5	15470	15.47	15470		
5. Frozen fillets	Oreochromis niloticus	Belgium	1.0	2200	1.00	2200		
	Lates niloticus	UK, Greece	561.0	1234200	561.00	1234200		
6. Chilled fillets	Oreochromis niloticus							
	Lates niloticus	Netherland	130.0	208000	130.00	208000		
7. Air/sundried	Swim bladder of Nile perch	Hong Kong	120.0	720	120.00	720		
	Total		53629.8	32736470	2389.57	5256470	51240	27480000
	Fresh Weight		59138.6	32736470	5418.57	5256470	53720	27480000

Source: UFO, 1991

TABLE 2: ESTIMATED ANNUAL FRESH FISH PRODUCTION FOR UGANDA WATERS - 1989
(A : WEIGHT IN TONNES, &8: VALUE IN MILLIONS U.SHS)

WATERBODY		SPECIES																					
		LAIES	TILAP.	HYDRO.	ALESTES	DISTIC.	SYNOD.	8AGRUS	BARBUS	CLARIAS	PROTO.	LABEO	MORMYRUS	MORMYROP	POLY.	MALAP.	CITHA.	AUCHENO.	RASTR.	SCHILBE	M.CARP	GNATH.	HYPER.	TOTALS
VICTORIA	A	101251.4	20218.3	0	0	0	0	912.85	609.36	1054.3	1006.5	0	212.2				o	o	1051.5	0		o	o	132382.4
	B																						o	0
																								0
KYOGA	A	15111.16	37148.26	0	0	0	0	3.96	2.017	363.38	920.75	o	1103.19				o	o	o	0	12.51	o	40.81	54706.63
	B																							0
																								0
ALBERT	A	1288.43	4335.3	2664.5	418.57	31.72	386.08	752.56	108.89	631.36	90.26	250.2	18.92	5.94		1.71		202.01						11201.38
	B	118	488.47	248.28	61.34	2.17	49.03	70.66	7.76	83.39	6.13	27.124	0.79	0.11		0.29		16.45						1180.824
																								0
ALBERTNILE	A	91.88	1121.31	293.67	292.08	46.91	29.73	52.74	16.5	72.28	35	48.24	35.23	3.68	0.61	14.67	2.12	13.01					2.05	2232.42
	B	18.28	149.25	68.11	53.14	8.12	7.44	11.29	14.77	18.24	1.1	9.6	1.28	0.74	0.2	3.73	0.53	2.11					0.13	380.066
																								0
GEORGE/EDWARD	A	o	2347.25	0	0	0	o	1648.43	53.52	339.4	1218.87	0.61	0.64	0	0	0	0	0						5608.12
	B	0	266.58	0	0	0	0	215.36	6.27	35.3	129.92	0.08	0.11	0	0	0	0	0						653.62
																								0
MINORWATER	A	5.1	2763.37	0	0	0	0	0	0	356.54	848.26													3975.48
	B	0.92	242.33							132.43	55.81													431.76
																								0
WAMALA	A																							1089.7
	B																							0
TOTALS	A	117155.1	67933.79	2958.2	710.65	84.63	415.81	3370.54	850.287	2823.26	4119.64	299.05	1430.18	9.62	0.61	16.38	2.72	215.02	7051.5	15.4	1.61	40.92	2.05	211196.1
	B	137.2	1146.63	316.39	1108	10.89	56.47	297.31	28.8	269.36	198.96	36.804	8.18	0.85	0.2	4.02	0.53	18.56	0	0.23	0.27	0.006	0.13	2646.27

SOURCE: Fisheries Department Entebbe.